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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/601,477	10/23/2000	Kenneth Michael Partington	CIBL 10858 US	4250

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EXAMINER

CANTELMO, GREGG

ART UNIT	PAPER NUMBER
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1745

13

DATE MAILED: 07/25/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/601,477	PARTINGTON ET AL.	
	Examiner	Art Unit	
	Gregg Cantelmo	1745	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 October 2000 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>3</u> . | 6) <input type="checkbox"/> Other: |

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

2. The information disclosure statement filed October 17, 2000 has been placed in the application file and the information referred to therein has been considered as to the merits.

Drawings

3. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: Fig 2 does not identify a negative plate via reference character 12 as recited on page 4 of the specification. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

4. No abstract has been provided in the instant application. No abstract is necessary since the front page of the WO document is present in the instant application

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and will be used as the abstract for the instant application unless Applicant intends to submit a different abstract in response to this office action.

5. The disclosure is objected to because of the following informalities: the term "characterised" should be --characterized--.

Appropriate correction is required.

Claim Objections

6. Claims 1-15 objected to because of the following informalities:
- a. The term "characterised" should be --characterized--;
 - b. Reference character (12) is only in Fig. 1 and not represented in the second embodiment of Fig. 2. Applicant should carefully review the claims, specification and drawings for accuracy and consistency in the reference characters.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claims 1-15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

a. Claim 1 recites the limitation "the first short edges (14)" in line 7 (antecedent basis is only for a first short edge (14) as recited in lines 4-5 of claim 1 and not for more than one short edge (14). Applicant is advised to use clearer language to set forth that each of the plurality of positive plates has a respective short edge (14). This also applies to use of the term "the second short edges (15)" as recited in line 9 of claim 1.

Claim 1 recites the limitation "one of the two sets of long edges (16a)" in line 8 but fails to clearly set forth antecedent basis for any number of sets of long edges 16a. Claim 1 recites the limitation "the same set of long edges (16a)" in line 10. It is unclear which of the sets from line 8 is being referred to (the one of the two sets or the other). There is insufficient antecedent basis for this limitation in the claim.

b. Claims 1-15 are indefinite. The claims use reference characters in parentheses however several of the reference characters in the claims are not provided in both embodiments in Figs. 1 and 2. For example Fig. 2 does not include reference characters: (10) to a battery; (12) to a plurality of negative plates; and short edges (14 and 15). Yet claims 1-15 recite member 28, which is present in Fig. 2 and not in Fig. 1. It appears that the claims are attempting to reference both embodiments but are unclear since the second embodiment of Fig. 2 does not include several of the reference characters set forth in the claims. This is vague when dealing with the features of the negative plates in claim 2.

Also in dependent claims 5-7, the battery is connected by a further connector (24), which is only true for the first embodiment;

c. Claim 7 recites the limitation "the second connector" in lines 1-2. There is insufficient antecedent basis for this limitation in the claim. The term "second" should be "further";

d. Regarding claims 12 and 15, the phrase "such as" renders the claims indefinite because it is unclear whether the limitations following the phrase are part of the claimed invention. See MPEP § 2173.05(d).

e. The claims are generally narrative and indefinite, failing to conform to current U.S. practice. They appear to be a literal translation into English from a foreign document and are replete with grammatical and idiomatic errors.

Furthermore the inconsistency with citation of reference characters does not lend to proper claiming of the second embodiment of Fig. 2 even though the claims attempt to do so as evidenced by the recitation of some components found only in this embodiment (member 28, for example). Thus the claims do not clearly read on this second embodiment and have been interpreted in line with the embodiment of Fig. 1 in the context of the instant claims as set forth below.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 1-5 and 8-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. patent No. 4,983,475 (Delans) in view of GB 1 590 947 (GB '947).

Delans discloses of a battery comprising a housing containing a plurality of positive plates 50 and negative plates 40 connected in parallel, the positive plates each being of substantially the same size and rectangular shape having two longer edges and first and second short edges (Figs. 3 and 4). The housing contains a member 58 being electrically connected to the first short edge of the positive plate 50 adjacent to one of the two sets of long edges and the second end being electrically connected to the second short edge of the positive plate (Fig. 3 as applied to claim 1).

The negative plates 40 are each substantially the same size and rectangular shapes having two long edges and first and second short edges and a member 38. Member 38 has a first end and second end, the first end being electrically connected to the first short edge of the negative plates and the second end being electrically connected to the second short edge of the negative plates (Figs. 3 and 4 as applied to claim 2).

The negative plates 40 and positive plates 50 are substantially the same size (Figs. 3 and 4 as applied to claim 3).

The first short edges of the positive plates are connected by a connector 36A which is electrically connected to a positive terminal 37 (Fig. 3 as applied to claim 4).

The second short edges of the positive plates are connected by a further connector 36B (Fig. 3 as applied to claim 5).

The battery is a lead-acid battery (col. 9, ll. 28-29 as applied to claim 8).

The diagonal member can be copper covered in lead (col. 9, ll. 61-66 as applied to claim 9).

The differences between the instant claims and Delans are that Delans does not disclose of the members being parallel to the long edges of the positive and negative plates (claims 1 and 2) or of the members having a higher conductivity than the plates (claims 1 and 2).

The aim of Delans is to reduce the electrical resistance of the battery and improve the electrical characteristics of the battery under load conditions (abstract). Thus Delans is drawn to the same field of endeavor.

With respect to the relative conductivity of the materials:

The invention of Delans is to reduce the electrical resistance of the battery and improve electrical characteristics of the battery (abstract). To optimize the electron flow, Delans incorporates bars 38 and 58, for example, to achieve these effects. One of ordinary skill in the art would have found it obvious to select the bar materials of Delans to have a conductivity which is greater than the plates since it would have achieved the improvements disclosed in Delans. It would not have been obvious to select material having the same or lower conductivity for the bars since it would not have reduced the

electrical resistance of the battery and failure to provide a path of lower resistance for the electron flow.

Since the cross section of the bars is smaller than the sum of the cross sections of the plates, in order to maximize the effects desired by Delans, the conductivity of the bars should be higher than the conductivity of the plates to compensate for the difference in surface area for the electrons to travel along the bars and reduce the electrical resistance of the battery (GB '947 page 1, lines 9-80).

The motivation for selecting a material having a higher conductivity than the plates is that it would have compensated for the difference in surface area for the electrons to travel along the bars (members) and thus reduced the electrical resistance of the battery.

Therefore it would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to modify the teachings of to provide the bars (members) with a material having a higher electrical conductivity than the plates since it would have compensated for the difference in surface area for the electrons to travel along the bars (members) and thus reduced the electrical resistance of the battery.

With respect to the parallel arrangement of the connecting members:

The arrangement of the connecting members of Delans is arranged diagonally. Yet these members provide the same function as the parallel members in the instant claims. Rearranging the diagonal members to be parallel would have been an obvious geometric alternative and optimization of the arrangement would have only required

routine experimentation. Such a rearrangement of parts has been held to involve routine skill in the art. *In re Japiske*, 86 USPQ 70.

11. Claims 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Delans in view of GB '947 as applied to claims 1-5 and 8-9 above, and further in view of U.S. patent No. 4,634,642 (Lopez Doriga).

The differences not yet discussed are of the further connector being the same material as the positive plate (claim 6), of the further connector being the same material as the member (claim 7).

Lopez Doriga teaches that it is desired to have the terminals, connectors and battery plates be of the same material (col. 2, ll. 64-66).

Use of the same material for these components provides the same level of conductivity of the battery components.

Therefore it would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to modify the teachings of Delans by selecting the material for the connector and the positive plate to be the same and of the connector and bar (member) being the same since it would have provided the same degree of conductivity of the material in the respective paths. The selection of a known material based on its suitability for its intended use supported a prima facie obviousness determination in *Sinclair & Carroll Co. v. Interchemical Corp.*, 325 U.S. 327, 65 USPQ 297 (1945) See also *In re Leshin*, 227 F.2d 197, 125 USPQ 416 (CCPA 1960). MPEP § 2144.07.

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12. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Delans in view of GB '947 as applied to claims 1-5 and 8-9 above, and further in view of U.S. patent No. 3,914,134 (Carson).

The difference not yet discussed is of the connector comprising copper covered in lead.

One feature of the principles of Carson, which serves to increase electrical conductivity, thereby improving efficiency, are copper cores bonded by casting techniques within both the lead -alloy connector elements and the upstanding posts on the straps. For ease of bonding the copper cores to the connector elements, the cores are initially electroplated with a 0.0005-inch deposit of 50 percent tin-50 percent lead alloy. As a consequence thereof, the current bearing capacity of the connectors is enhanced to the point that large amounts of current are accommodated (col. 3, ll. 36-46).

The motivation for providing a connector comprising copper covered in lead is that it increases the electrical conductivity of the battery and further reduces the weight of the battery.

Therefore it would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to modify the teachings of Delans by providing a connector comprising copper covered in lead since it would have increased the electrical conductivity of the battery and further would have reduced the weight of the battery. The selection of a known material based on its suitability for its intended use supported a prima facie obviousness determination in *Sinclair & Carroll Co. v.*

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Interchemical Corp., 325 U.S. 327, 65 USPQ 297 (1945) See also In re Leshin, 227 F.2d 197, 125 USPQ 416 (CCPA 1960). MPEP § 2144.07.

13. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Delans in view of GB '947 as applied to claims 1-5 and 8-9 above, and further in view of U.S. patent No. 5,348,817 (Rao).

The difference not yet discussed is of the positive terminal being copper covered in lead.

Rao teaches of a bipolar lead-acid battery wherein the end plates and terminals comprise lead-plated copper (col. 9, ll. 30-37).

The motivation for using lead-coated copper is that it enhances the conductivity of the plates while reducing the overall weight of the battery.

Therefore it would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to modify the teachings of Delans by using lead-coated copper materials as the end plates and terminals since it would have enhanced the conductivity of the plates while reduced the overall weight of the battery. The selection of a known material based on its suitability for its intended use supported a prima facie obviousness determination in Sinclair & Carroll Co. v. Interchemical Corp., 325 U.S. 327, 65 USPQ 297 (1945) See also In re Leshin, 227 F.2d 197, 125 USPQ 416 (CCPA 1960). MPEP § 2144.07.

14. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Delans in view of GB '947 as applied to claims 1-5 and 8-9 above, and further in view of U.S. patent No. 5,470,679 (Lund).

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The difference not yet discussed is of the member being a copper alloy covered in a lead sheath.

Delans teaches of using a lead coated copper material. Delans does not explicitly recite that the material can be a copper alloy.

One of ordinary skill in the art would have found it obvious to replace copper with a copper alloy so long as the member was made of any electron-conducting substance, which undergoes no chemical change in an assembled battery. Lund teaches that the use of copper alloy components in a lead acid battery is advantageous in that it provides rigidity, low resistance and current-carrying capability/ (col. 5, ll. 39-47).

Therefore it would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to modify the teachings of Delans by selecting the member to be a copper alloy covered in a lead sheath since it would have provided an equivalent material that provided a high level of electrical conductivity at a reduced weight. The selection of a known material based on its suitability for its intended use supported a prima facie obviousness determination in *Sinclair & Carroll Co. v. Interchemical Corp.*, 325 U.S. 327, 65 USPQ 297 (1945) See also *In re Leshin*, 227 F.2d 197, 125 USPQ 416 (CCPA 1960). MPEP § 2144.07.

15. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Delans in view of GB '947 as applied to claims 1-5 and 8-9 above, and further in view of U.S. patent No. 3,922,175 (Grangvist).

The difference not yet discussed is of the member or bars comprising aluminum covered in a lead sheath.

The invention of Delans is to reduce the electrical resistance of the battery and improve electrical characteristics of the battery (abstract). To optimize the electron flow, Delans incorporates bars 38 and 58, for example, to achieve these effects. One of ordinary skill in the art would have found it obvious to select the bar materials of Delans to have a conductivity which is greater than the plates since it would have achieved the improvements disclosed in Delans. It would not have been obvious to select material having the same or lower conductivity for the bars since it would not have reduced the electrical resistance of the battery by failing to provide a path of lower resistance for the electron flow.

Since the cross section of the bars is smaller than the sum of the cross sections of the plates, in order to maximize the effects desired by Delans, the conductivity of the bars should be higher than the conductivity of the plates to compensate for the difference in surface area for the electrons to travel along the bars and reduce the electrical resistance of the battery.

Aluminum is an obvious choice as a metal having high conductivity. The internal resistance has been a matter of concern, and attempts have been made to reduce it by making the connecting lines between the electrodes of a metal of another type of lesser specific resistance, for example, aluminum covered with lead, so that the aluminum does not come in contact with the electrolyte (col. 2, ll. 25-37).

In the case of a lead storage cell, conductors 35 and 36 must be made out of lead, and where it is important to decrease the internal resistance, the rising conductors

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located outside the elements should be made of material with better conductivity, for example, copper or aluminum (col. 5, ll. 16-21).

The motivation for selecting aluminum as the member or bar material is that it would have provided a member or bar having reduced electrical resistance, thus increased electrical conductivity. The result would have improved the overall efficiency of the battery. Furthermore using aluminum would have reduced the overall weight of the battery.

Therefore it would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to modify the teachings of Delans by selecting the bar material to be aluminum since it would have provided a material having enhanced conductivity and further reduced the overall weight of the battery. The selection of a known material based on its suitability for its intended use supported a prima facie obviousness determination in *Sinclair & Carroll Co. v. Interchemical Corp.*, 325 U.S. 327, 65 USPQ 297 (1945) See also *In re Leshin*, 227 F.2d 197, 125 USPQ 416 (CCPA 1960). MPEP § 2144.07.

The motivation for providing a lead sheath covering to the aluminum is that it protects the conductive material from the electrolyte.

Therefore it would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to modify the teachings of Delans by covering the bar member with a lead sheath to protect the conductive bar from the electrolyte. The selection of a known material based on its suitability for its intended use supported a prima facie obviousness determination in *Sinclair & Carroll Co. v. Interchemical Corp.*,

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325 U.S. 327, 65 USPQ 297 (1945) See also In re Leshin, 227 F.2d 197, 125 USPQ 416 (CCPA 1960). MPEP § 2144.07.

16. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Delans in view of GB '947 as applied to claims 1-5 and 8-9 above, and further in view of U.S. patent No. 2,739,997 (Carrick).

The difference not yet discussed is of the member or bars comprising an aluminum alloy covered in a lead sheath.

The invention of Delans is to reduce the electrical resistance of the battery and improve electrical characteristics of the battery (abstract). To optimize the electron flow, Delans incorporates bars 38 and 58, for example, to achieve these effects. One of ordinary skill in the art would have found it obvious to select the bar materials of Delans to have a conductivity which is greater than the plates since it would have achieved the improvements disclosed in Delans. It would not have been obvious to select material having the same or lower conductivity for the bars since it would not have reduced the electrical resistance of the battery by failing to provide a path of lower resistance for the electron flow.

Since the cross section of the bars is smaller than the sum of the cross sections of the plates, in order to maximize the effects desired by Delans, the conductivity of the bars should be higher than the conductivity of the plates to compensate for the difference in surface area for the electrons to travel along the bars and reduce the electrical resistance of the battery.

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Carrick discloses that using an aluminum or aluminum alloy material covered in lead within a lead acid battery will reduce the overall weight of the battery. In addition, one of ordinary skill in the art would have recognized that such a modification would also have increased the conductivity of the battery since aluminum has a greater conductivity than lead (col. 3, ll. 3-9 and col. 5, ll. 55-68).

The motivation for selecting an alloy of aluminum as the member or bar material is that it would have provided a member or bar having reduced electrical resistance, thus increased electrical conductivity. The result would have improved the overall efficiency of the battery. In addition, the use of an aluminum alloy would have reduced the weight of the battery.

Therefore it would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to modify the teachings of Delans by selecting the bar material to be an alloy of aluminum since it would have provided a material having enhanced conductivity and further reduced the overall weight of the battery. The selection of a known material based on its suitability for its intended use supported a prima facie obviousness determination in *Sinclair & Carroll Co. v. Interchemical Corp.*, 325 U.S. 327, 65 USPQ 297 (1945) See also *In re Leshin*, 227 F.2d 197, 125 USPQ 416 (CCPA 1960). MPEP § 2144.07.

The motivation for providing a lead sheath covering to the aluminum alloy is that it protects the conductive material from the electrolyte.

Therefore it would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to modify the teachings of Delans by covering the bar

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member with a lead sheath to protect the conductive bar from the electrolyte. The selection of a known material based on its suitability for its intended use supported a prima facie obviousness determination in *Sinclair & Carroll Co. v. Interchemical Corp.*, 325 U.S. 327, 65 USPQ 297 (1945) See also *In re Leshin*, 227 F.2d 197, 125 USPQ 416 (CCPA 1960). MPEP § 2144.07.

17. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Delans in view of GB '947 as applied to claims 1-5 and 8-9 above, and further in view of JP 63-125519 (JP '519)

The difference not yet discussed is of covering the lead sheath with an acid resistant material.

Coating of metallic components with acid resistant materials is a commonplace technique in the art of manufacturing lead-acid battery grids (see abstract of JP '519).

The motivation for providing an acid resistant cover to the lead sheath is to prevent the lead sheath from being corroded.

Therefore it would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to modify the teachings of Delans by covering the lead sheath in an acid resistant material since it would have protected the lead sheath and underlying conductive material from corrosion. The selection of a known material based on its suitability for its intended use supported a prima facie obviousness determination in *Sinclair & Carroll Co. v. Interchemical Corp.*, 325 U.S. 327, 65 USPQ 297 (1945) See also *In re Leshin*, 227 F.2d 197, 125 USPQ 416 (CCPA 1960). MPEP § 2144.07.

Conclusion

18. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gregg Cantelmo whose telephone number is (703) 305-0635. The examiner can normally be reached on Monday through Thursday from 8:00 a.m. to 5:30 p.m. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Pat Ryan, can be reached on (703) 308-2383. FAX communications should be sent to the appropriate FAX number: (703) 872-9311 for After Final Responses only; (703) 872-9310 for all other responses. FAXES received after 4 p.m. will not be processed until the following business day. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

gc

July 22, 2002


Patrick Ryan
Supervisory Patent Examiner
Technology Center 1700